

Appl. No. 09/991,598
Amdt. dated November 14, 2005
Reply to Office Action of June 13, 2005

DEC 12 2006

BEST AVAILABLE COPY REMARKS

Claims 1 to 21 were pending in the Application at the time of examination. The Examiner rejected Claims 1 to 21, provisionally, under the judicially created doctrine of obviousness-type double patenting over claims 1 to 21 of co-pending Application serial number 09/991,598. The Examiner rejected Claims 1 to 21 under 36 U.S.C. 112, second paragraph. The Examiner rejected Claims 1 to 6 under 35 U.S.C. 101. The Examiner rejected Claims 1 to 21 under 35 U.S.C. 103(a) as obvious over the Dukach et al. reference (US 6,609,159 B1) in view of the Woodring et al reference (US 6,519,686 B2). Claims 1 to 21 remain in the application.

**REJECTION OF CLAIMS 1 TO 21 UNDER THE JUDICIALLY CREATED
DOCTRINE OF OBVIOUSNESS-TYPE DOUBLE PATENTING**

The Examiner rejected Claims 1 to 21, provisionally, under the judicially created doctrine of obviousness-type double patenting over Claims 1 to 21 of co-pending Application serial number 09/991,598.

Applicants respectfully request that the provisional rejection of Claims 1 to 21 under the judicially created doctrine of obviousness-type double patenting over claims 1 to 21 of co-pending Application serial number 09/991,598 be held in abeyance until there are allowed claims.

**REJECTION OF CLAIMS 1 TO 21 UNDER 35 U.S.C. 112, SECOND
PARAGRAPH**

The Examiner rejected Claims 1 to 21 under 36 U.S.C. 112, second paragraph. The Examiner stated:

As to Claims 1, 7, 13 and 21, it is not clearly indicated how the step of intercepting and

GUNNISON, MCKAY &
HODGSON, LLP.
Cordis West Office Plaza
1900 Chabot Road, Suite 220
Menlo Park, CA 94025
(415) 655-0880
Fax (415) 655-0189

Appl. No. 09/900,596
Amdt. dated November 14, 2005
Reply to Office Action of June 13, 2005

BEST AVAILABLE COPY

redirecting a call are performed. Why the call has to be redirected. What is the relationship between the call and a corresponding symbol in the second library? The step of intercepting and redirecting should be clearly described.

Applicants respectfully traverse this rejection. Page 10, line 6 to page 12, line 6, of Applicants' Specification reads as follows, with emphasis added:

FIG. 4 is a block diagram illustrating an interprocess communication using a Speed Library according to a specific embodiment of the present invention. A process 402 communicates with another process 404 through doors 406, 408, semaphore 410, 412, and mapped memory 414. Each process 402, 404 opens a TCP socket 416, 418 respectively, which is associated with a socket library (not shown). Through interposition, process calls for the socket library are intercepted and redirected to the Speed Library (not shown) that is associated with a door IPC mechanism and a semaphore. The doors 406 and 408 are not used for context switching but set up the initial connection between process 402 and 404. The Speed Library enables process 402 to communicate data availability, or synchronization signals 420, with process 404 using system-scope semaphores 410, 412. Each process transfers data through the mapped memory 414.

For example, when process 402 opens socket 416 to read data from process 404 via socket 418, the read calls 422 are interposed with the Speed Library. Speed Library enables processes 402 and 404 to

GUNNISON, MCKAY &
HODGSON, LLP
Garden West Office Plaza
1800 Garden Road, Suite 220
Menlo Park, CA 94025
(415) 655-0888
Fax (415) 655-0888

Appl. No. 09/955,596
Amdt. dated November 14, 2005
Reply to Office Action of June 13, 2005

BEST AVAILABLE COPY

communicate synchronization signals using semaphores 410, 412 through kernel 424. The mapped memory 414 enables data to transfer from process 404 to process 402 based on the synchronization signals without sending the data through the kernel 424. When process 402 opens socket 416 to write data through socket 418 to process 404, the write calls 426 are interposed with the Speed Library. The Speed Library enables processes 402 and 404 to communicate synchronization signals using semaphores 410, 412 through kernel 424. The mapped memory 414 enables data to transfer from process 404 to process 402 based on the synchronization signals without sending the data through kernel 424. Both processes 402 and 404 are represented in the user space 428 while the kernel 424 is represented in the kernel space 430. Thus, the sockets 402 and 404 virtually communicate (represented by line 432) while the data and synchronization signals are actually transferred through the mapped memory 414 and semaphores 410, 412 respectively enabled by the Speed Library.

FIG. 5 is a flow diagram illustrating a method for moving data between a first process and a second process according to a specific embodiment of the present invention. In a first block 502, a second shared library, such as a Speed Library, is associated with a process through interposition. In block 504, a process call for a symbol in a first library, for example a TCP socket library, is intercepted by the interposer. The interposer in turn redirects the call for a corresponding symbol in the second shared library in step 506. The corresponding symbol enables a door for each process to set up an

GUNNISON, MCKAY &
HODGSON, LLP
Garden West Office Plaza
1900 Garden Road, Suite 220
Menlo Park, CA 94025
(650) 655-0880
Fax (650) 655-0888

Appl. No. 09/955,596
Amdt. dated November 14, 2005
Reply to Office Action of June 13, 2005

BEST AVAILABLE COPY

initial connection. The processes then communicate synchronizing signals through semaphores in block 508 and transfer data through a mapped memory in block 510 based on the synchronizing signals in block 508.

Data is copied into a memory map buffer to avoid making multiple copies of the data. In particular, a sliding window type of buffer management has been adopted. For every connection, the server creates a shared memory mapped segment. This segment is divided into multiple windows. Each window is further divided into slots. The number and sizes of slots are configurable.

Applicants respectfully submit that the claims are to be read and interpreted in light of the Specification. Given the text cited above, and common knowledge of those having skill in the relevant art, Applicants respectfully submit that Applicants' independent Claims 1, 7, 13 and 21, and all Applicants' dependent claims, fully meet the requirements of 35 U.S.C. 112, second paragraph. Consequently, Applicants respectfully request the Examiner withdraw the rejection of Claims 1 to 21 under 35 U.S.C. 112, second paragraph.

REJECTION OF CLAIMS 1 TO 6 UNDER 35 U.S.C. 101

The Examiner rejected Claims 1 to 6 under 35 U.S.C. 101.

Applicant respectfully traverses the non-statutory subject matter rejection of Claims 1 to 6.

To make a *prima facie* non-statutory subject matter rejection, the MPEP directs:

Office personnel have the burden to establish a *prima facie* case that the claimed invention as a whole is directed to solely an abstract idea or to manipulation of abstract ideas or does not produce a useful result. Only

GUNNISON, MCKAY &
HODGSON, L.L.P.
Garden West Office Plaza
1900 Garden Road, Suite 220
Menlo Park, CA 94025
(415) 355-0888
Fax (415) 355-0888

Appl. No. 09/900,596
Amdt. dated November 14, 2005
Reply to Office Action of June 13, 2005

BEST AVAILABLE COPY

when the claim is devoid of any limitation to a practical application in the technological arts should it be rejected under 35 U.S.C. 101. ... Further, when such a rejection is made, Office personnel must expressly state how the language of the claims has been interpreted to support the rejection.

MPEP, §2106, 8th Ed., Rev. 2, p. 2100-7 (May 2004). It is noted that this directive stated only if "the claimed invention as a whole is directed to solely an abstract idea or to manipulation of abstract ideas . . . should it be rejected [emphasis added]." Accordingly, failure to adhere to the foregoing tenet means that a *prima facie* case of obviousness has not been made.

Applicants' Independent Claim 1 reads as follows with emphasis added:

A method for moving data between processes in a computer-based system, each process calling for one or more symbols in a first library, the method comprising:

associating each process with a second library, said second library comprising one or more symbols with a door interprocess communication mechanism, said door interprocess mechanism enabling each process to set up an initial connection, said connection subsequently communicating a synchronization signal using a semaphore, said one or more symbols enabling data communication through a mapped memory based on said synchronization signal; intercepting a call from each process for a symbol in said first library; and redirecting said call to a corresponding symbol in said second library.

As shown above Applicants' Claim 1 includes the following elements: a computer-based system; a process; a first library; a second library; a mapped memory; an initial connection; and a door interprocess communication mechanism.

GUNNISON, McKay &
HODGSON, L.L.P.
Gardens West Office Plaza
1900 Chabon Road, Suite 220
Menlo Park, CA 94025
(415) 655-0880
Fax (415) 655-0888

Appl. No. 09/900,596
Amdt. dated November 14, 2005
Reply to Office Action of June 13, 2005

BEST AVAILABLE COPY

Applicants respectfully submit that a computer-based system; a process; a first library; a second library; a mapped memory; an initial connection; and a door interprocess communication mechanism each refer to a computer-related process, and not to a mental or abstract process. Consequently, Applicants respectfully submit that the rejection failed to meet the MPEP requirement for a *prima facie* case of non-statutory subject matter. Further, the rejection appeared to have considered the claim in a "vacuum" and not in view of the disclosure and the level of skill in the art as required by the MPEP. Applicants respectfully request reconsideration and withdrawal of the Section 101 rejection of Claim 1.

Claims 2 to 6 depend, directly or indirectly on Claim 1. Consequently, Applicants respectfully request reconsideration and withdrawal of the Section 101 rejection of Claims 2 to 6 as well.

REJECTION OF CLAIMS 1 TO 21 UNDER 35 U.S.C. 103(a)

The Examiner rejected Claims 1 to 21 under 35 U.S.C. 103(a) as obvious over the Dukach et al. reference (US 6,609,159 B1) in view of the Woodring et al reference (US 6,519,686 B2).

Applicants Independent Claim 1 reads as follows with emphasis added:

A method for moving data between processes in a computer-based system, each process calling for one or more symbols in a first library, the method comprising:

associating each process with a second library, said second library comprising one or more symbols with a door interprocess communication mechanism, said door interprocess mechanism enabling each process to set up an initial connection, said connection subsequently communicating a synchronization signal using a semaphore, said one or

GUNNISON, McKay &
HODGSON, L.L.P.
Garden West Office Plaza
1900 Garden Road, Suite 220
Monterey, CA 93940
(831) 455-0880
Fax (831) 455-0888

Appl. No. 09/901,596
Amdt. dated November 14, 2005
Reply to Office Action of June 13, 2005

BEST AVAILABLE COPY

more symbols enabling data communication through a mapped memory based on said synchronization signal; intercepting a call from each process for a symbol in said first library; and redirecting said call to a corresponding symbol in said second library.

Applicants Independent Claim 7 reads as follows with emphasis added:

A program storage device readable by a machine, tangibly embodying a program of instructions readable by the machine to perform a method for moving data between processes in a computer-based system, each process calling for one or more symbols in a first library, the method comprising:

associating each process with a second library, said second library comprising one or more symbols with a door interprocess communication mechanism, said door interprocess mechanism enabling each process to set up an initial connection, said connection subsequently communicating a synchronization signal using a semaphore, said one or more symbols enabling data communication through a mapped memory based on said synchronization signal; intercepting a call from each process for a symbol in said first library; and redirecting said call to a corresponding symbol in said second library.

Applicants Independent Claim 13 reads as follows with emphasis added:

An apparatus for moving data between processes in a computer-based system, the apparatus comprising:
a plurality of processes;
a mapped memory;
a first library having one or more symbols,
said plurality of processes calling for said one or more symbols in said first library of symbols;

GUNNISON, MCKAY &
HODGSON, LLP
Garden West Office Plaza
1900 Garden Road, Suite 220
Menlo Park, CA 94025
(831) 655-0110
Fax (831) 655-0688

Appl. No. 09/900,596

Amdt. dated November 14, 2005

Reply to Office Action of June 13, 2005

BEST AVAILABLE COPY

a second library having one or more symbols, said one or more symbols associated with a semaphore and a door interprocess communication mechanism setting up an initial connection; and an interposer intercepting a call from a process for said one or more symbols in said first library and redirecting a call for corresponding said one or more symbols in said second library.

Applicants Independent Claim 21 reads as follows with emphasis added:

An apparatus for moving data between processes in a computer-based system, each process calling for one or more symbols in a first library, the apparatus comprising:

means for associating each process with a second library, said second library comprising one or more symbols with a door interprocess communication mechanism, said door interprocess mechanism enabling each process to set up an initial connection, said connection subsequently communicating a synchronization signal using a semaphore, said one or more symbols enabling data communication through a mapped memory based on said synchronization signal;

means for intercepting a call from each process for a symbol in said first library; and

means for redirecting said call to a corresponding symbol in said second library.

As shown above, each of Applicants independent Claims 1, 7, 13 and 21 includes the recited feature of a door interprocess communication mechanism, said door interprocess mechanism enabling each process to communicate a synchronization signal and/or an interposer/interposition, or words to that effect.

The Examiner stated, with emphasis added:

GUNNISON, MCKAY &
HODGSON, L.L.P.
Garden West Office Plaza
1900 Garden Road, Suite 220
Menlo Park, CA 94025
(415) 655-0880
Fax (415) 655-0888

Appl. No. 09/907,596
Amdt. dated November 14, 2005
Reply to Office Action of June 13, 2005

BEST AVAILABLE COPY

...Dukack (sic) teaches the invention substantially as claimed including: data (information, col 3, ln 35-42), data between processes in a computer-based system (col 6, ln 35-40/col 8, ln 37-42), one or more symbols (OS function 144, col 8, ln 55-62), the first library (the library of the OS 134, col 8 ln 52-55), process calling for one or more symbols in a first library (col 8, ln 58-62), associating each process with a second library (col 8, ln 36-37), a second library (the interposed library, col 8, ln 36-37/ln 60-65), one or more symbols of the second library (the interposed library function col 8, ln 52-65), a door interprocess communication (file descriptor, col 3, ln 62-64/col 10, ln 33-34/ln 53-55), said door interprocess mechanism enabling each process to communication (col 15, ln 1-6/col 16, ln 15-21), interprocess communication mechanism (interprocess communication links, col 8, ln 40-46), intercepting a call from each process for a symbol in said first library (col 8, ln 58-65/col 9, ln 24-30), redirecting said call to a corresponding symbol in said second library (col 8, ln 63-65).

Applicants first note that Dukach's column 8, lines 35 to 65 reads as follows, with emphasis added:

The back end server and the interposed library which is linked to it, are one process. The front end server is another. The OS accords each separate process its own separate subspace within the common OS space. A given process cannot directly write to another process's sub-space, but the OS does let it communicate with another processes in the same OS space through interprocess communication links, or pipes. Such pipes are defined and only work within a given OS space defined by a given OS kernel.

Although it is not mentioned elsewhere in this specification, those skilled in the computer arts will understand that the OS normally runs processes in virtual memory, i.e., a memory space larger than that which will fit in RAM at one time, and automatically swaps portions of this virtual memory

GUNNISON, McKay &
HODGSON, L.L.P.
Gordon West Office Plaza
1900 Gordon Road, Suite 220
Monterey, CA 95040
(831) 655-0888
Fax (831) 655-0888

Appl. No. 09/977,596
Amdt. dated November 14, 2005
Reply to Office Action of June 13, 2005

BEST AVAILABLE COPY

space in and out of memory from and to the hard disk, as needed for current computations.

As stated above, the back end server is linked to the interposed dynamically-loaded library 116. The back end server is also linked to the library of the OS 134. As is shown in FIG. 10, the interposed library includes functions 144A, such as bind(), listen(), and accept(), having some of the same names as the functions 144 contained in the OS's network library 142. Since the interposed library is linked to the back end server with a higher precedence than the OS's library, if the back end server calls a named OS function 144 for which there is a similarly named interposed library function 144A, the call will be intercepted by the interposed library function. This means the back end server process's program control will go to the interposed library function 144A, rather than to the similarly named OS function 144.

As shown above, Dukach specifically discloses, teaches and suggests that the interprocess communication links are pipes. Indeed Dukach discloses, teaches and suggests that "interprocess communication links" and "pipes" are identical terms by reciting "interprocess communication links, or pipes..." Consequently, Applicants respectfully submit that Dukach specifically discloses, teaches and suggests that pipes are the only form of interprocess communication link suitable for use with Dukach's structure and that Dukach specifically rules out, and teaches away from, the use of any other form of interprocess communication link.

Pipes, such as those specifically disclosed and taught in Dukach, are discussed in the "BACKGROUND OF THE INVENTION SECTION" of Applicants Specification at, for example page 2, line 18 to page 3, line 7. Pipes, such as those specifically disclosed and taught in Dukach, are also shown in Applicants FIG.1, clearly marked a "Prior Art". Page 2, line 18 to page 3, line 7 of Applicants Specification reads as follows, with emphasis added:

GUNNISON, MCKAY &
HODGSON, L.L.P.
Garden West Office Plaza
1000 Garden Road, Suite 220
Menlo Park, CA 94025
(650) 655-0888
Fax (650) 655-0888

Appl. No. 09/977,596
Amdt. dated November 14, 2005
Reply to Office Action of June 13, 2005

BEST AVAILABLE COPY

Interprocess communication (IPC) is the exchange of data between two or more processes. Various forms of IPC exists: pipes, sockets, shared memory, message queues, and Solaris™ doors.

A pipe provides the ability for a byte of data to flow in one direction and is used between processes. These two processes must be of common ancestry. Typically, a pipe is used to communicate between two processes such that the output of one process becomes the input of another process. FIG. 1 illustrates a conventional pipe 100 according to a prior art. The output of process 102 becomes the input of process 104. Pipe 100 is terminated when process 102 that is referencing it terminates. Data is moved from process 102 to process 104 through a pipe 100 situated within a kernel 106.

As shown above, Applicants clearly distinguish pipes as distinct from doors and then explain some of the limitations of pipes. As noted above, the Examiner then goes on to state that Dukach teaches :

a door interprocess communication (file descriptor, col 3, ln 62-64/col 10, ln 33-34/ln 53-55), said door interprocess mechanism enabling each process to communication (col 15, ln1-6/col 16, ln 15-21)

Page 5 lines 3 to 11 of Applicants' Specification reads as follows:

The fastest form of IPC on Solaris™ Operating System from Sun Microsystems Inc. is doors. However, applications that want to communicate using doors need to be explicitly programmed to do so. Even

GUNNISON, MCKAY &
HODGSON, L.L.P.
Gardes West Office Firm
1900 Chabon Road, Suite 230
Menlo Park, CA 94025
(831) 655-0880
Fax (831) 655-0886

Appl. No. 09/977,596
Amdt. dated November 14, 2005
Reply to Office Action of June 13, 2005

BEST AVAILABLE COPY

though doors IPC is very fast, the socket-based IPC is more popular since it is portable, flexible, and can be used to communicate across a network.

A definite need exists for a fast IPC technology that would overcome the drawbacks of doors and socket-based IPC. Specifically, a need exists for a fast socket technology implementation using doors. A primary purpose of the present invention is to solve these needs and provide further, related advantages.

In light of the discussion above, Applicants respectfully submit that, contrary to the Examiners' comments, the disclosure of a "file descriptor" in the Dukach reference is not a disclosure, teaching or suggestion of the "doors" recited in Applicants Claims 1, 7, 13 and 21.

In light of the discussion above, Applicants respectfully submit that contrary to the Examiners' comments, the disclosure of a "file descriptor" in the Dukach reference is not a disclosure, teaching or suggestion of the "doors" recited in Applicants Claims 1, 7, 13 and 21. Applicants further submit that, in light of this fact, the Examiner has failed to show a disclosure, teaching or suggestion of the "doors" recited in Applicants Claims 1, 7, and 21.

Applicants further submit that the addition of the Woodring et al reference does nothing to cure these basic deficiencies of the Dukach et al reference. Consequently, Applicants respectfully submit that the Examiner has failed to show where in the Dukach et al reference, Woodring et al reference, or any proper combination of the Dukach et al reference and Woodring et al reference, it is disclosed, taught or suggested a door interprocess communication mechanism, said door interprocess mechanism enabling each process to communicate a synchronization signal or an interposer/interposition mechanism.

GUNNISON, MCKAY &
HODGSON, L.L.P.
Garden West Office Plaza
1700 Garden Road, Suite 220
Monterey, CA 93940
(831) 655-0880
Fax (831) 655-0888

Appl. No. 09/555,596
Amdt. dated November 14, 2005
Reply to Office Action of June 13, 2005

BEST AVAILABLE COPY

In light of the discussion above, Applicants respectfully request the Examiner withdraw the rejection of Claims 1, 7, 13 and 21 under 35 U.S.C. 103(a) and allow Claims 1, 7, 13 and 21 to issue.

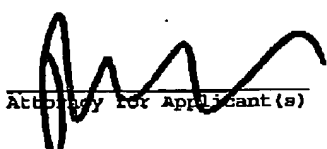
Claims 2 to 6 depend, directly or indirectly on Claim 1. Consequently Claims 2 to 6 include all of the features of Claim 1, as amended. Claims 8 to 12 depend, directly or indirectly on Claim 7. Consequently Claims 8 to 12 include all of the features of Claim 7, as amended. Claims 14 to 20 depend, directly or indirectly on Claim 13. Consequently Claims 14 to 20 include all of the features of Claim 13. Therefore, Applicants respectfully request the Examiner withdraw the rejection of Claims 2 to 6, 8 to 12 and 14 to 20 under 35 U.S.C. 103(a) and allow Claims 2 to 6, 8 to 12 and 14 to 20 to issue.

CONCLUSION

For the foregoing reasons, Applicants respectfully request allowance of all pending Claims 1 to 21. If the Examiner has any questions relating to the above, the Examiner is respectfully requested to telephone the undersigned Attorney for Applicants.

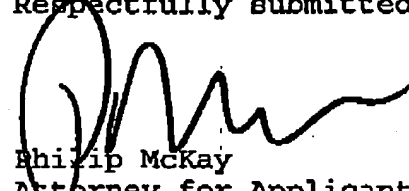
CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on November 14, 2005.


Attorney for Applicant(s)

November 14, 2005
Date of Signature

Respectfully submitted,


Philip McKay
Attorney for Applicants
Reg. No. 38,966
Tel.: (831) 655-0880

GUNNISON, MCKAY &
HODGSON, L.L.P.
Garden West Office Plaza
1900 Garden Road, Suite 220
Menlo Park, CA 94025
(415) 655-0880
Fax (415) 655-0888